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Human Relations Research Group
Institute of Industrial Relations and School of Business Administration
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ANNUAL TECHNICAL REPORT

Motivational Factors in Productivity
Contract No. Nona-233(09)
February 15, 1953

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Prepared for the
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I. THE PROBLEM

The program of research herein reported, conducted under the sponsorship of the Office of Naval Research since September, 1951, has as its primary objective the identification and measurement of those human variables which have an impact upon effective group functioning. Up to the present time, our field work has been carried on in three different settings. The major setting has been a local naval research and development laboratory. Work has also been carried on at the Western Training Laboratory in Group Development at Idyllwild, California, and at a local aircraft plant.

A current examination of our program shows it to be concerned with four major problems. These are: (1) the definition of organizational objectives and the evaluation of the attainment of these objectives; (2) the isolation, identification, and measurement of personality characteristics of leaders and followers which are related to high or low productivity in formal organizations; (3) an examination of the social situation as it relates to high or low productivity of leaders and followers; and (4) an analysis of the impact of the introduction of change in organizational objectives or in the social structure upon the behavior of leaders and followers.

A number of studies have already been completed which test hypotheses related to all four of these problem areas. Some advances in research methodology have been accomplished and new tools and techniques are being developed which we hope will permit a more sophisticated approach to the problems under investigation.

The main orientation of our research program is based on a theoretical paper prepared by Robert Tannenbaum and Fred Massarik, provisionally called, "Leadership: A Frame of Reference." Although not yet ready for publication, this paper will embody the key theoretical notions upon which our research is based.

II. COMPLETED RESEARCH

This section will be treated from two points of view. We will concern ourselves with actual findings of various research studies that have been carried on under this program, and will also report what we hope to be the advances in methodology and technique.

1. The Efficiency Rating Study

(Reported in detail in the 1952 Annual Technical Report; for references see Fred Massarik, Irving R. Weschler and Robert Tannenbaum, "Evaluating Efficiency Rating Systems Through Experiment," Persomnel Administration, vol. 14, no. 1, January, 1951, pp. 42-47; and Irving R. Weschler, Robert Tannenbaum and Fred Massarik, "Experimenting with Federal Efficiency Ratings: A Case Study," Journal of Social Psychology, November, 1952.)

This study was the first of our efforts to examine the validity of commonly used criteria of performance. It represented an attempt to analyze the discontent with which the Federal Civil Service Efficiency Rating system had been viewed in many quarters for some time. Specifically, this investigation attempted to throw light on the stability of efficiency ratings under a series of systematically varied conditions. The major findings included: (1) "New experimental conditions" which facilitated a more private expression of opinion resulted in lower ratings than those given under regular Civil Service conditions; (2) A "new experimental rating form" exerted some influence upon the ratings, but this influence was smaller than the effect of the experimentally created rating conditions; and (3) A slightly higher proportion of sub-professionals than professionals were given lower ratings when the results were kept private. Follow-up interviews and additional experimental studies were recommended as methods by which the nature of the shifts in ratings could be studied more adequately. As a result of this study, our interest was aroused in a more comprehensive analysis of the total evaluation process.

2. The Conference of Research Administrators.
(Reported in Irving R. Weschler and Paula Brown (eds.), Evaluating Research and Development, University of California, Los Angeles, Institute of Industrial Relations Publication, 1953.)

The field of research and development evaluation is extremely complex and, as yet, unorganized. We felt that a conference in which "experts" could discuss specific questions would lead to greater understanding of the evaluation process. Therefore, in May, 1952, a group of leading research administrators on the West Coast were called together for a one-day conference to deal intensively with the following two major topics: (1) how objectives for research groups are formulated; and (2) what factors are most relevant in evaluating individual and group performance with reference to the achievement of objectives. Within each of these two problem areas a number of questions were raised to serve as agenda for intensive small group discussions. These questions were:

- A- 1. Where and how are project proposals typically made? (At what level within the organization? Outside the organization?)
2. What criteria (e.g., feasibility, profitability, meeting needs) are used in selecting the projects to be carried out? What specific evidence is there that the criteria which are used in selecting projects are in fact the most appropriate?
3. In what respects is the problem of defining objectives different for basic research, applied research, development, and testing activities? For individuals? For groups?
4. What are the specifications which a statement of objectives should include in order to answer the questions: What? Who? When? Where? How?
5. Why, in what respects, to what extent, and by whom are objectives modified during the course of the project? What criteria are used in reaching the decision to modify or discontinue a project? At what organizational level should the decision be made?
- B- 1. What kinds of individual and group performance (e.g., research proposals, methodology, behavior, and products) are most useful for purposes of evaluation?

- B- 2. What characteristics or attributes (e.g., for research proposals: quantity, quality, feasibility, etc.) of these performances should be evaluated?
3. What specific techniques (e.g., for feasibility of research proposals: calculated-risk formulae, ratings by consultants, etc.) can be used to measure these characteristics?
4. How is the evaluation of individual and group performance affected by such factors as:
- (a) different types of projects?
 - (b) the organizational level at which evaluation is made?
 - (c) the competence of the evaluator?
 - (d) whether or not the evaluator is a member of the organization?

The discussions at the conference were transcribed, analyzed, edited, and published as a printed document of annotated proceedings of 104 printed pages. The proceedings consist of ten sections. These are:

1. Introduction to the Conference
(A description of the rationale behind the conference, as well as the mechanics of its organization. This section includes the agenda and the roster of participants and discussion leaders.)
2. My Point of View on the Evaluation of Research and Development, by L.M.K. Boelter, Dean, School of Engineering, UCLA
(An edited transcript of the welcoming address by Dean Boelter.)
3. Setting a Frame of Reference for the Evaluation of Research and Development, by Robert Tannenbaum
(A statement of the pre-conference frame of reference of the Human Relations Research Group, based on a review of the literature, as well as on several interviews with research administrators.)
4. The Conference Proceedings: An Annotated Discussion
(The transcripts of the seven discussion groups have been abstracted and re-grouped to illustrate various topics covered and approaches to the problems set for the conference.)
5. A Preliminary Report on Further Research, by Verne Kallejian
(A description of an empirical study with two major objectives: (1) to determine what performance criteria superiors actually use in evaluating the output of their units, and to determine what conditions, if any, favor the use of one criterion against another; and (2) to determine the impact of interpersonal relations upon the rating judgments of superiors.)
6. Appendix A: A Check-List of Individual and/or Group Performance
(A list of characteristics of performance which can be evaluated, and possible techniques for their measurement.)

7. Appendix B: Suggested Questions for Afternoon Discussion
8. Appendix C: Anonymous Evaluation of the Conference by the Conferees
9. Appendix D: Special Correspondence between R. Weller and R. Tannenbaum
10. A Selected Bibliography

3. The Multi-Relational Sociometric Survey Technique, M.S.S.

(First reported in summary in the 1952 Annual Technical Report; for a detailed description see Irving R. Weschler, Robert Tannenbaum and Eugene Talbot, "A New Management Tool: The Multi-Relational Sociometric Survey," Personnel, July, 1952; and Fred Massarik, Robert Tannenbaum, Murray Kahane and Irving R. Weschler, "Organizational Structure and Sociometric Choice: A Multi-Relational Approach." Submitted for publication.)

These two articles describe a new survey technique which can provide useful information through an analysis of interpersonal relations in a formal organization. By means of this technique, two divisions of a local naval research laboratory were studied and contrasted.

Sociometric methods have proved effective for the study of group structure. The M.S.S. is an extension of sociometric methodology. Its primary contribution is the inclusion of additional dimensions--relations and activities--which make possible the construction of a number of indices which can be related to various measures of effective organizational functioning.

- A. The Relations: The M.S.S. concerns itself with five interpersonal relations: the prescribed, the perceived, the actual, the desired, and the rejected. This five-fold schema bridges the gap between the formal blueprint, organizational realities, and affective interpersonal patterns. The prescribed relations specify what is essentially the formal organizational blueprint. The perceived relations are concerned with personal views or "perceptions" of the organizational blueprint. The actual relations indicate actual interactions, as

reported by the members of the organization. The desired and rejected relations are equivalent to the customary sociometric "attraction" and "repulsion" dimensions.

- B. The Activities: The M.S.S. covers more than the typically small number of "choice criteria" customarily employed in sociometric research. It considers a wide range of activities which may be categorized into job-oriented, i.e., primarily concerned with the work task, and the nonjob-oriented, i.e., not essential to the completion of the work task. Examples of the former are order-giving and efficiency-rating, while examples of the latter are socializing after working hours and having lunch with others.

The consideration of a wider variety of activities facilitates a more accurate specification of what actually takes place in formal organizations. No organization has a single sociometric structure--rather, the structure varies with the several activities that constitute its day-to-day operations.

- C. The Indices: Using data obtained from the relations and activities, a number of indices are constructed. These indices provide information on: (a) the extent to which the organizational blueprint is understood (indices of understanding); (b) the extent to which the organizational blueprint is adhered to by the existing interactions (indices of normative conformity); (c) the extent to which "ideal", desired interaction patterns are actually realized in practice (indices of affective conformity); (d) the extent to which actual interaction patterns also are desired or rejected (indices of satisfaction and dissatisfaction); (e) the extent to which a pleasant

emotional feeling tone predominates (indices of affective atmosphere); and (f) the extent to which powers vested by the organizational blueprint are concentrated in a particular person or group of persons (indices of centralization).

The various states of balance or imbalance between affect, reality, and organizational fiat may be expected to have implications for productivity, morale and job satisfaction. Insofar as this is the case, the indices may become useful as predictors of organizational effectiveness.

4. Job Satisfaction, Productivity and Morale: A Case Study
(Reported in summary in the 1952 Annual Technical Report; for a detailed report see Irving R. Weschler, Murray Kanane and Robert Tannenbaum, "Job Satisfaction, Productivity and Morale: A Case Study," Occupational Psychology, January, 1952, vol. 26, pp. 1-14; translated and reprinted in Tecnica ed Organizzazione, May-June, 1952, pp. 73-79.)

An attempt was made to determine the relationship between job satisfaction, perceived productivity, and perceived morale in two comparable divisions of a local naval research and development laboratory. One division was headed by a restrictive leader, and the other by a permissive leader. All persons in both divisions filled out questionnaires, and interviews were held with administrative and key staff people. The groups were compared in terms of their ratings of the variables: job satisfaction; perceived productivity for the work group, division, and laboratory; and perceived morale for the work group, division, and laboratory. The subordinates of the permissively-led group provided higher ratings for all variables except perceived productivity, work group. Top management gave higher actual productivity ratings to the restrictively-led division than to the permissively-led division. These discrepancies in evaluation have been partially explained in terms of communication failures.

5. Developing Social Sensitivity in Leaders

(A short article by Robert Tannenbaum, Verne Kallejian, and Irving R. Weschler. To be submitted for publication.)

This paper deals with the problem of imparting social sensitivity skills to leaders of various levels within any given organizational unit. A new approach through leadership training is described which can be identified in terms of two main characteristics: (1) The training sessions are conducted with all the leaders within a given organizational unit attending at the same time. In industry, this might include the department head, his division heads, and their branch heads. In education, it might consist of a superintendent, his assistants, and the various members of his staff. In a community agency, the field supervisors might meet with the director of the agency and his staff assistants. (2) This training is clinically oriented, that is, the trainees are given the opportunity to develop interpersonal sensitivity rather than concerning themselves exclusively with knowledgeable materials. The group, with the help of the trainer, learns to identify distortions in interpersonal perceptions, to develop growing awareness of "self", and to acquire a better understanding and acceptance of the feelings and attitudes of other individuals.

The paper discusses the problems of introducing a training program of this kind, the role and functions of the trainer, and finally, the implications and advantages of training leadership-hierarchies in social sensitivity.

6. The Clinical Rating Study

(To be submitted for publication under the title, "The Impact of Interpersonal Relations on Ratings of Performance," by Verne Kallejian, Paula Brown, and Irving R. Weschler, and reported in brief in Section 5 of Evaluating Research and Development.)

This article reports an empirical study of the evaluation process as it actually occurs in a research and development laboratory. The study consists of two phases. The first was intended to determine what characteristics of

performance superiors actually use in evaluating the output of their units, and to determine what conditions, if any, favor the use of one characteristic as against another. One department of the naval research and development laboratory was studied. At the time of the investigation, this department consisted of approximately 425 people, organized in five divisions, each of which was subdivided into four or five operating and independently functioning branches. Some of these branches were, in turn, subdivided into independently functioning sections.

The superiors in this department rated the groups which they supervised in terms of their over-all effectiveness of performance. Next, they were asked to state what criteria of performance they used in arriving at these over-all ratings. Then the raters were presented with a list of 17 specific characteristics of performance (such as general technical competence of the personnel in the group, communications within the group, administrative competence of the group leader, quantity of work accomplished, etc.), and asked to rate their units again, independently, on each of these. A scale ranging from 0 (very poor performance) to 10 (outstanding performance) was used. These ratings are known as the actual ratings. Finally, they indicated the importance they attached to the 17 items.

The following findings emerged from this phase of the study. The characteristics of performance which superiors actually use in evaluating groups they supervise can be readily grouped into four major categories: output, skills, supervision, and group variables. Within each of these categories, however, there appears little agreement as to which specific items are most important. The ratings on the 17 items show more agreement as to the importance or lack of importance of certain specific items. Superiors at all

levels within the department placed emphasis on four items, i.e., general technical competence of personnel in the group, proper utilization of the personnel, technical competence of the head, and effectiveness of the head as a leader. There was a tendency to minimize the importance of such factors as planning, scheduling, and control procedures, systematic work methods, potential for group "growth", and conformity of the product to specifications. The reliability of ratings, in those cases where two or more individuals rated the same groups on the 17 items, ranged from $-.60$ to $+.94$. This range was to be expected in view of the lack of agreement concerning the relative importance of specific characteristics in evaluating performance, and in view of the different interpretation of items. The effect of this divergence of attitudes is also reflected in the lack of agreement with regard to the over-all ratings of performance in those cases where two or more superiors rated the identical groups.

One division of the department which was studied in the first phase was selected for further investigation in the second phase. This division contained five branches, four of which had two or more sections. The design of this second phase required a clinically trained interviewer to interview members of subordinate groups with reference to topics related primarily to interpersonal relations. The task of the interviewer, who had no previous contact with the personnel of the division, was to predict the various superiors' actual ratings of their subordinate groups by talking only to their subordinates. These predictive ratings were to be made for over-all effectiveness of performance, as well as for all of the other 17 selected characteristics of performance. In addition, the interviewer was also to make his own evaluative ratings which were to reflect his personal impressions of the groups

under examination. The interviewer was able to make predictive ratings which were accurate significantly above chance. The article discusses in detail the clues which the interviewer used in making his evaluations and predictions. The conclusion was drawn that ratings of performance are influenced by four major variables:

First, the actual performance, that is, the degree of attainment of individual or group objectives. With our present degree of sophistication, little progress has been made to obtain objective, valid measures of this variable.

Second, the personality characteristics of the rater, that is, those attitudes and needs of an individual which influence the way in which he sees himself and responds to the world around him. In the rating situation, these attitudes and needs largely determine the manner in which he relates to and evaluates individuals, groups and products in his organization. As far as the impact of these personality characteristics on the evaluation process is concerned, a skilled observer should be able to account in part for the extent to which they influence any given rater's judgments.

Third, the situational setting, that is, the type of organization in which the work is performed, the kinds of individuals making up the organization, and the kinds of relationships which exist among people in job and nonjob-oriented activities. Again, a skilled observer should be able to determine the impact of the situational setting upon any given rater's judgments.

Fourth, the rating requirements themselves, that is, the types of rating judgments which the raters are asked to make. Individuals differ in the relative ease with which they are able to make varying types of rating judgments; for instance, some people are quite able to formulate judgments

with regard to material objects, while experiencing difficulties in their understanding and evaluation of other people, while others respond in the opposite way. A skilled interviewer should be able to determine the kinds of rating judgments which a particular individual can make most easily.

7. The Scientific Attitude Study

(Approved as a doctoral dissertation in the Department of Psychology, UCLA, under the title, "The Relationship Between the Attitudes of Scientific Research Workers Toward the Components of Scientific Work and Their Performance Rating," by Norman Henderson.)

This study attempted to answer two questions: (1) Does the degree of similarity of attitudes between rater and ratee towards the components of the scientific process correlate with the performance rating? (2) Does the degree of intensity of attitude towards the different components of scientific research correlate with self ratings of performance?

A large aircraft manufacturing and research organization was chosen as the place from which to gather the data. Here, only those subjects who were working on projects which were the most theoretical and scientific in character were selected for the study. These people were well acquainted with the processes of experimental research. They were either scientists or engineers.

Three measuring instruments were developed and presented to these scientists: (1) An attitude scale to measure the attitudes of scientific research workers toward some of the components of the scientific research process; (2) A self rating scale; (3) A supervisor-subordinate rating scale. Except for verb changes, each scale was made up of identical items. Then, a reliability check of the attitude scale and of the rating form was made. Both of these instruments appeared to have enough reliability to justify their use in order to test the hypotheses involved in this study.

The hypothesis that there is a relationship between the similarity in attitude and performance rating appears to be substantiated by a coefficient of correlation of .26 between the average similarity of attitude and the average rating. This low correlation plus other results indicate that this relationship may not be universal, but may actually vary from item to item.

The second hypothesis, namely that there is a relationship between the attitudes toward the procedures used in performing scientific research and self rating is definitely established by the results of this study. The correlation between these attitudes and ratings is positive and significant in each instance. However, none of the coefficients of correlation between attitude and self rating is high enough to exclude all other factors from affecting rating.

When the similarity between supervisors' and subordinates' attitudes are correlated with supervisor ratings, the results show a relationship on some of the items. Thus, the study indicates that an attitude scale could be constructed which could, to some degree, predict supervisor ratings.

The present study has completed a few preliminary steps in developing a representative sample of reliable items from Flanagan's "Check List of Critical Requirements for Research."

III. RESEARCH IN PROGRESS

The studies described in this section are at different stages of completion. Some will be submitted for publication within a few months, while others are just in the preliminary planning phases and may not be completed for over a year.

1. The Social System of a Laboratory

(This study, directed by Paula Brown, has been under way since the summer of 1952.)

In the past few months, this study has been clarified and divided into two parts: (a) status and prestige, and (b) social structure and social change. Two features of the research setting served to frame the study and point to specific areas for fruitful investigation: (1) it is a civil service organization under military supervision; specifically, one department of a local naval research and development station; (2) it is a laboratory composed of scientists, technical specialists, and supporting personnel, in which the requirement of specialized training controls the choice of personnel.

One part of the social study is concerned with social distinctions: status and prestige. The hypotheses of this part of the study were derived: (a) from a concept of the function of status and prestige in interpersonal influence, (b) from the general study of the social system of the laboratory, and (c) from a review of current work in the social sciences on stratification.

In our interviews and observations it appeared that, while the formal status system is relatively rigid, prestige (esteem, respect, etc.) is more variable and more fluid. We have used as our definition of status, "a position in a system involving rights, duties, and expected behavior;" we have defined prestige as "the respect accorded an individual by others." The systems of

status and prestige are not independent; a person may have prestige because of his position, and the prestige-giving characteristics may contribute to a status. However, those sources of influence which are explicitly prescribed by the organization and accepted by its members (status) can be distinguished from those arising from attitudes and values of the members which are not prescribed but operate for the whole organization, for groups or for individuals (prestige). There are several areas of interest in this part of the study.

- A. Value Systems With Regard to Status and Prestige: The social distinctions which are being studied have been grouped according to this dichotomy:
- (1) Organizationally defined status systems which provide clear-cut distinctions: civil service grade, salary, the supervisory hierarchy.
 - (2) Prestige values which are held by the members: educational level attained, seniority in the group, technical specialty, research vs. development work, reputation in the professional field, attainments within the laboratory, responsibility for projects, possession of useful information.

Each of these factors can be considered as criterion of status or prestige. The importance attached to these criteria is a measure of the "value system" of the individuals, groups, and the organization with regard to social distinctions. Some hypotheses concerning the importance of the status and prestige criteria are:

- (1) Although each of these may be of importance to some people, they will not be of equal importance.

- (2) There will be some agreement as to the important criteria throughout the laboratory.
- (3) There will be greater agreement as to the important criteria among: (a) operating groups, (b) status groups (e.g., branch heads, GS-9s), and (c) specialists (e.g., mathematicians, draftsmen) than in the laboratory as a whole.
- (4) The significance of any given status or prestige criterion will vary with the activities (e.g., problem solving, testing, administration) with which the individuals are concerned.

As yet, no specific techniques have been selected for testing these hypotheses. Open-ended questions, forced-choice questions and scaling methods are under consideration.

B. Mutual Perceptions of Status and Prestige: We plan to use a modified sociometric method in which individuals will choose or rank their work-fellows and themselves with regard to a number of criteria. For example, questions would refer to technical ability, contribution of ideas, preferences as to work partners, influence on group morale, etc. One problem of interest is the relation between scales: the extent to which an individual who is high on one scale is also high on others; clusters of closely related scales; the components of an "over-all" status or prestige ranking. We are interested in the perceptions of individuals as to their status and prestige in the organization and the variables related to this. The data on mutual perceptions will also be analyzed with relation to the "value system" for social distinctions: an individual's accuracy of perception

and agreement with his fellows as to the status and prestige of individuals is, we believe, related to agreements as to the value system and to satisfaction with his own position.

- C. The Relation Between Attitudes Toward Social Distinctions and Satisfaction with the Organization: Some hypotheses concerning these relations are: If an individual is satisfied with his own position, he will be satisfied with his co-workers and superior; If a person feels that the organization's values concerning status and prestige are different from his own values, he will be dissatisfied with his own status and prestige as related to his co-workers and superiors.

At present, our efforts are directed toward specification of the problems and hypotheses, and designing the instruments. We hope to administer a preliminary questionnaire to a selected sample of the department within the next month. The full investigation will follow analysis of these results.

The second part of the social study, that of social structure and social change, has been under way for several months. The data consist of organizational documents, interviews with laboratory personnel, and observations of group meetings and of informal discussions. Periodic summaries of relevant material have been made. The plan of this research is to continue interviews and observations as long as possible into the future; such a continuing study of a changing organization should yield much valuable data on processes of social change in organizations.

Several kinds of change are occurring simultaneously in the laboratory:

- (1) Organizational change: shifts in the status of groups in the hierarchical structure, formation of new groups, dissolution of groups, recombination of groups, etc.
- (2) Spatial change: the moving of desks and offices.
- (3) Functional change: modification of objectives and responsibilities of groups and individuals.
- (4) Individual change: promotions, separations, transfers.

Such changes take place in all organizations, but the pace in this laboratory is exceptionally high, and we have an excellent opportunity to observe them. As much data as seems feasible will be gathered before a final write-up is made for this research.

2. Social Sensitivity in Participative Discussion Groups
(Titled in previous reports, "Empathic Understanding in Effective Group Leadership", a study by Verne Kallejian, to be completed by Summer, 1953)

It is generally assumed that effectiveness in interpersonal relations is somehow related to a phenomenon which has been variously labeled "empathy," "social perception," and "social sensitivity." This assumption has been subjected to numerous experimental investigations which have yielded conflicting results.

This study was designed to consider further three aspects of the general problem, as follows:

- (1) To identify and measure some of the situational and interpersonal correlates of social sensitivity in small discussion groups.
- (2) To investigate the relationship between social sensitivity and effective group leadership.
- (3) To evaluate the effect of training on social sensitivity.

Two standardized scales and a pre-tested instrument were administered to the delegates and staff of the first Western Training Laboratory in Group Development at Idyllwild, California, in August, 1952. These instruments were administered before and after the training period to all participants in the training groups (T groups). The basic instrument consists of a set of 32 items selected from two pre-tests. These items sample various aspects of interpersonal activity in discussion groups. Each subject was required to respond to these items in accordance with four different sets of directions, as follows:

- (1) Affective Evaluation - The subject responds to each item with a number from one to five to indicate the extent to which he reacts favorably or unfavorably to the behavior indicated by the item.
- (2) Self Description - The subject indicates the extent to which he feels that each item is descriptive of his own "personality."
- (3) Social Sensitivity - The subject selects three individuals from his group in the order in which he believes that he can predict their behavior. He then attempts to predict their responses (self descriptions) on these items.
- (4) Perception of Authority - The subject indicates the extent to which he feels that each item describes the group leader. The group leader's task on this portion of the instrument is to predict the distribution of the group's responses.

For the measures obtained in (2), (3), and (4), responses were forced into a normal distribution, adapting the "Q" sort technique to a paper and pencil instrument. In the second administration of (3), each judge was asked to retain two of the individuals whom he had selected in the first administration and was given the option of selecting a different third person if he so desired. These three individuals were then ranked in the order in which the judge felt that he understood them and the task for part (3) completed. The following additional information was also obtained:

Sociometric choices - A series of sociometric questions relating to group status, interpersonal attraction, and group productivity were completed by each subject.

Social attitudes - Measures of authoritarian personality characteristics and its variants were obtained by the "F" scale, the Chicago Inventory (Form T), and an "Attitudes toward Participative Groups" scale, developed for this study.

A. Situational and Interpersonal Correlates of Social Sensitivity: In this phase of the study, the hypothesis being tested was that social sensitivity is a function of the situation and the interpersonal relationships between individuals, rather than a trait or skill possessed in given quantities by different individuals.

- (1) Indices of social sensitivity were obtained in the conventional manner by correlating the judges' predictions with the actual self ratings of the subject. These "R's" were converted to "Z" scores for further computations.
- (2) Situational variables considered were: (a) group norms, (b) sociometric choices, and (c) similarities and differences between judge and subject with respect to social attitudes, self descriptions, and rigidities in perception, i.e., consistencies in perception within one administration and between administrations.

The basic relationships are currently being evaluated by comparing the various measures within a given administration of the instruments and by correlating the concomitant changes which occurred as a result of training. Reliable changes in accuracy of interpersonal judgments can be correlated with the hypothesized changes in the other variables being studied.

B. Social Sensitivity and Effective Group Leadership: The objective of the experimental conditions, i.e., the training period, was to produce changes in social perception and to "improve" the accuracy of interpersonal judgments. Five training groups were used. In this phase of the study, a measure of group effectiveness was obtained by considering the over-all changes in social sensitivity and in social attitudes (i.e., the "F", "Chicago", and "group

attitude" scores). Changes in these variables are now being analyzed in their relation to indicators of leadership behavior. These indicators include: (a) the social sensitivity of the leader, as defined above, (b) the accuracy with which the group leader predicted his effect upon group members with respect to the 32 items, and (c) sociometric indices of the leader's effect on the group.

C. Evaluation of the Effect of Training on Social Sensitivity: In this phase of the study an attempt was made to evaluate the effects of training on interpersonal skills, i.e., to evaluate the impact of the group experience on social sensitivity as defined by the various measures in this design. The following specific problems were also investigated:

- (1) What are the initial characteristics of those individuals who display the greatest changes in interpersonal skills and social attitudes?
- (2) What are the characteristics of those individuals who show minimal change as a result of intensive training?
- (3) For both of these categories of individuals, what are the concomitant changes in:
 - a. affective evaluation
 - b. self description
 - c. perception of the leader
 - d. sociometric choice by others in the group
 - e. selection by others in the group as individual "best understood"?

This portion of the research was exploratory in nature and is providing some useful cues for further research.

The first phase of the study is nearing completion. It will be submitted as a Ph.D. dissertation and will shortly thereafter appear in the literature. Its results are in general accord with the hypothesis as stated above. A preliminary analysis of the data from the second phase indicates that the variables studied account for a significant portion of the variance of

effective leadership. Further analysis of the data for the second and third phases is currently under way and the results will also be reported in the literature.

The over-all objective of our research program is to isolate factors associated with effective leadership. This study contributes to this objective in several ways. Its methodology appears to be promising, particularly for use in the applied setting in which future work will be performed.

3. The Function of Flexibility in Leadership
(A project, planned as a Ph.D. dissertation, by Arnold S. Gebel)

Effective leaders are generally thought to exhibit greater flexibility with regard to their perception of self, others, and environment than do ineffective leaders. This study, as projected, seeks to clarify the relationships among the foregoing and to determine their relevance to leadership behavior and potential. We are also interested in analyzing the personality characteristics of individuals who can be differentiated along the flexibility dimension. At the present time the study is planned in two major phases, each with distinct methodologies and field settings.

Phase I: This phase will be primarily concerned with an understanding of the relationship between the flexibility characteristics of leaders and followers to scientific productivity. Flexibility has tentatively been defined as the "ability to have differential role perceptions for each individual and to modify behavior appropriately from individual to individual."

A number of hypotheses are now being developed which exemplify our definition of flexibility in terms of perceptual and behavioral response. Two illustrations of such hypotheses follow:

- A. The person with a number of personality conflicts will
 - a. perceive usual nonthreatening situations and persons as stressful
 - b. perceive ego threatening situations or persons with a proportionately greater threat to the self than will the more secure person
 - c. have a smaller behavioral repertory because of the perceived threat
 - d. select a behavioral response on the basis of expediency
- B. In certain instances, the possible behavioral responses may be placed on a continuum ranging from erratic, through flexible, to rigid.

Scaling devices and other lesser known techniques, such as hypothetical questions, etc., will probably be used. The criteria for scientific productivity are now emerging from the criterion study which has been described elsewhere.

Phase II: The second phase of the flexibility study will be conducted at the Western Training Laboratory in Group Development in August, 1953. We shall be concerned with the relation of flexibility, as a personality variable, to leadership potential and amenability to leadership training. A basic personality picture for each of the participants will be derived. Predictions will be made with regard to each person's leadership potential and changes will be noted which take place during training. These changes will be interpreted in the light of initial and terminal flexibility measures. It is hoped that the results will lend themselves to the development of better instruments for the selection of leadership trainees as well as for the development of new insights into the process of leadership training.

Instruments have not as yet been designed for this study. Some projective techniques, such as the Levy Movement Blots, are being considered and will probably constitute the major instruments for this inquiry.

4. Human Organizations Research Faces Industry

(At the 1952 meeting of the American Association for the Advancement of Science, a paper was presented by Fred Massarik before Section H, Anthropology, entitled, "Human Organizations Research Faces Industry: An Exercise in the Public Relations of Science." This paper is to be revised and published under the joint authorship of Mr. Massarik and Paula Brown.)

This article will be concerned with the problems involving outside financing encountered by a social scientist who wishes to carry out "pure" research rather than to do research for management. The attitudes of management toward such research can be characterized as resistance to change. The researcher may be viewed by the manager as a potential threat to the organizational equilibrium rather than as a potential aid. The value systems held by social scientist and those held by manager may conflict.

When approached by social scientists desiring to use their organization for social research purposes, managers may ask:

- A. Will a study mean trouble?
- B. Will a study mean expenses?
- C. Will a study benefit the organization?
- D. What will happen to the findings?

If these explicit questions are satisfactorily answered, the manager may still have doubts and fears, such as:

- A. Can the scientific method be applied to social phenomena?
- B. Will a study show management in a bad light?
- C. Just who is behind the study?

If social scientists wish to have access to all kinds of organizations, and not only those with "enlightened" or acquiescent management, these conflicts in value must be faced and resolved. Several things can be done to facilitate rapport between social scientists and managers:

- A. Social scientists and managers should learn more about each others' value systems. A part of the social scientist's work is learning the values of other sections of the population,,but the managers do not have similar strong motives to learn about the values of scientists.
- B. The social scientist must seek to answer clearly, realistically, and honestly the questions posed by the managers. He must explain his values to the managers.
- C. Community relations programs, involving university and industry, occasionally might concern themselves with the topic of university-industry cooperation in social research.

The burden of these actions lies with the social scientist, as it is mainly in his interest that the studies are carried out.

5. The Criterion Problem

Throughout the development of our work, we have given considerable thought to the problem of finding criteria of effectiveness against which we could validate our hypotheses on leadership, group functioning, individual and team productivity, morale, job satisfaction, and the like. These efforts have been described in detail in Section II of this report. The problem is twofold: (1) establishing relevant criteria of performance, and (2) evaluating performance with respect to the criteria. As yet, we are far from satisfied with the progress that has been made by us and by others with regard to this crucial problem. Ratings of performance, with regard to both individual and group efforts, are still largely dependent upon subjective judgments, and even the isolation of the personality variables responsible for variations in subjective judgment does not much improve the situation.

Our Conference Proceedings on "Evaluating Research and Development" contain, in an appendix, a checklist for the evaluation of individual and/or group performance with reference to organizational objectives. This checklist

provides some useful hints with regard to the kinds of performance (objectives) and their characteristics which can be evaluated, and also suggests specific techniques for measuring these characteristics. It is our hope to be able, during the coming year, to expand this checklist and to test the validity of these measuring techniques wherever possible. For example, techniques such as the "critical incident" method or communication distortion tests are currently being considered for further investigation.

IV. THE HUMAN RELATIONS RESEARCH GROUP

The Human Relations Research Group, an interdisciplinary team, is composed of people who have had advanced academic training and experience in the fields of industrial relations, economics, psychology, sociology, and anthropology. The processes of research design and execution, interpretation of results, and writing of reports are carried out by means of group conferences. Each member fully participates in all phases of the work. Thus, each member's knowledge and experience are brought to bear on all problems, and each increases his competence as a social scientist through his interaction with the others. Currently, the members of the Group are:

Robert Tannenbaum, Project Director; A.B. (Business Administration), M.B.A. (Accounting), Ph.D. (Personnel Management and Industrial Relations), University of Chicago.

Associate Professor, Personnel Management and Industrial Relations, School of Business Administration.

Associate Research Economist, Institute of Industrial Relations.
(Part time, 9/1/51 to present).

Irving R. Weschler, Assistant Project Director; B.B.A. (Industrial Management) City College of New York, M.A. (Vocational Guidance) Columbia University, Ph.D. (Psychology) University of California, Los Angeles.
Assistant Professor, Personnel Management and Industrial Relations, School of Business Administration.
Assistant Research Psychologist, Institute of Industrial Relations.
(Part time, 9/1/51 to present).

Paula Brown; B.A., M.A. (Anthropology) University of Chicago, Ph.D. (Social Anthropology) University of London
Junior Research Anthropologist, Institute of Industrial Relations.
(Full time, 1/16/52 to present).

Fred Massarik; B.A. (Psychology), M.A. (Sociology) University of California, Los Angeles.
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Graduate Research Psychologist-Sociologist, Institute of Industrial Relations.
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Arnold Gebel; A.B. (Psychology) University of California, Los Angeles,
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Graduate Student.

Graduate Research Assistant, Institute of Industrial Relations.

(Part time 9/15/52 to present).

Gertrude Peterson; B.A. (Sociology) University of Washington.

Graduate Student.

Graduate Research Assistant, Institute of Industrial Relations.

(Part time, 9/15/52 to present).

Lois Smallwood, Secretary

(Full time, 9/8/52 to present).

/s/ Robert Tannenbaum,
Responsible Investigator